

First Report of *Tomato spotted wilt virus* in Hosta in Florida

M. Timur Momol and Hank Dankers, University of Florida, IFAS, Department of Plant Pathology, North Florida Research and Education Center, Quincy, FL 32351; and Scott Adkins, USDA-ARS-USHRL, Fort Pierce 34945

Corresponding author: Timur Momol. tmomol@ufl.edu

Momol, M. T., Dankers, H., Adkins, S. 2003. First report of *Tomato spotted wilt virus* in hosta in Florida. Online. Plant Health Progress doi: 10.1094/PHP-2003-1024-01-HN.

In spring 2003, symptoms similar to thrips-vectored spotted wilt disease caused by *Tomato spotted wilt virus* (TSWV) were observed on outdoor-grown hosta (*Hosta* spp.) in Florida. Symptoms observed included leaf necrosis and stunting, chlorotic and necrotic spotting, and distinctive ring patterns (Fig. 1). The incidence of symptomatic hosta was less than 1% in the affected area.



Fig. 1. Spotted wilt symptoms (chlorotic and necrotic spotting and distinctive ring patterns), caused by *Tomato spotted wilt virus*, on hosta leaf.

Six symptomatic plants were used for diagnosis. Using light microscopy, after staining with Calcomine Orange 2RS/Luxol TM Brilliant Green BL (2), *Tospovirus* cytoplasmic inclusions were observed in all assayed symptomatic leaves. Diagnosis of TSWV from symptomatic leaves of hosta was confirmed by double-antibody sandwich-enzyme linked immunosorbent assay using a commercially available kit (Agdia Inc., Elkhart, IN). Symptomatic hosta plants produced A_{405nm} readings of 0.596 to 3.500, whereas non-symptomatic hosta plants produced A_{405nm} readings of 0.095 to 0.141 when compared to control wells containing buffer only. Sequence analysis of a nucleocapsid (N) protein gene fragment amplified by reverse transcription-polymerase chain reaction (RT-PCR) with primers TSWV723 and TSWV722 (1) from total RNA confirmed the diagnosis (Fig. 2). Nucleotide and deduced amino acid sequences of a 579 base pair region of the RT-PCR product were 94 to 99% and 95 to 100% identical, respectively, to TSWV N-gene sequences in GenBank. No product was amplified from non-symptomatic hosta plants.

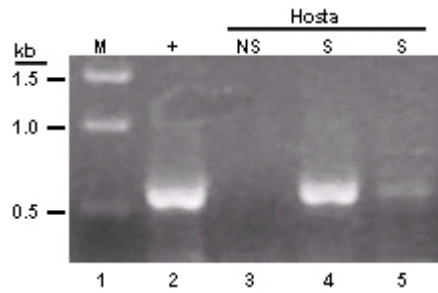


Fig. 2. Detection of *Tomato spotted wilt virus* (TSWV) infection in hosta plants by reverse transcription-polymerase chain reaction (RT-PCR). Total RNA was extracted from leaves of non-symptomatic (NS; Lane 3) and symptomatic (S; Lanes 4 and 5) hosta plants, amplified by RT-PCR with virus specific primers, analyzed by native electrophoresis on a 2% agarose gel and stained with ethidium bromide. A positive control (+; Lane 2) consisted of total RNA extracted from leaves of a Key West nightshade plant (*Solanum bahamense*) mechanically inoculated with TSWV. Lane 1 (M) contains markers with sizes in kilobases (kb) indicated to the left of the gel.

This is the first report of TSWV on hosta in Florida. TSWV continues to be an economically important disease constraint to the production of ornamental plants, vegetables, and field crops in the southeastern US and the known host range is expanding to include additional ornamental plant species in Florida.

Literature Cited

1. Adkins, S., and Roskopf, E. N. 2002. Key West nightshade, a new experimental host for plant viruses. *Plant Dis.* 86:1310-1314.
2. Christie, R. G., and Edwardson, J. R. 1994. Light and electron microscopy of plant virus inclusions. University of Florida, Institute of Food and Agricultural Sciences. Monograph No. 9, revised.